Name:

at1119paper: Complete the Square, b = odd (v502)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 27x = -176$$

Add $\left(\frac{-27}{2}\right)^2$, which equals $\frac{729}{4}$, to both sides of the equation.

$$x^2 - 27x + \frac{729}{4} = \frac{25}{4}$$

Factor the left side.

$$\left(x + \frac{-27}{2}\right)^2 = \frac{25}{4}$$

Undo the squaring.

$$x + \frac{-27}{2} = \frac{-5}{2} \quad \text{or} \quad x + \frac{-27}{2} = \frac{5}{2}$$

$$x = \frac{27-5}{2} \quad \text{or} \quad x = \frac{27+5}{2}$$

$$x = 11 \quad \text{or} \quad x = 16$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 35x = 294$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 23x \;=\; 1274$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 49x \;=\; -598$$